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Parental ADHD Predicts Child and Parent Outcomes Parental Friendship Coaching Treatment

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Abstract

Objective—This study investigated the impact of parental ADHD symptoms on the peer relationships and parent-child interaction outcomes of children with ADHD among families completing a randomized-controlled trial of Parental Friendship Coaching (PFC) relative to control families.

Method—Participants were 62 children with ADHD (42 boys; ages 6–10) and their parents. Approximately half of the families received PFC (a 3-month parent training intervention targeting the peer relationships of children with ADHD) and the remainder represented a no-treatment control group.

Results—Parental inattention predicted equivalent declines in children's peer acceptance in both treatment and control families. However, treatment amplified differences between parents with high versus low ADHD symptoms for some outcomes: Control families declined in functioning regardless of parents' symptom levels. However, high parental inattention predicted increased child peer rejection and high parental inattention and impulsivity predicted decreased parental facilitation among treated families (indicating reduced treatment response). Low parental symptoms among treated families were associated with improved functioning in these areas. For other outcomes, treatment attenuated differences between parents with high versus low ADHD symptoms: Among control parents, high parental impulsivity was associated with increasing criticism over time whereas all treated parents evidenced reduced criticism regardless of symptom levels. Follow-up analyses indicated that the parents experiencing poor treatment response are likely those with clinical levels of ADHD symptoms.

Conclusions—Results underscore the need to consider parental ADHD in parent training treatments for children with ADHD.

Keywords

ADHD; parent training; social functioning; parental psychopathology; parent-child relationship

Attention-Deficit/Hyperactivity Disorder (ADHD) is highly heritable; therefore, parents of children with ADHD are likely to struggle with such symptoms themselves.¹ Although parents' ADHD symptom levels genetically influence their children's ADHD symptoms, it

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is less known how parental ADHD may impact other ADHD-related impairments among their children. Given the pervasive social problems of children with ADHD,² it is important to understand if parental ADHD symptoms contribute to children's social difficulties and represent a barrier to treatments aimed at ameliorating these social deficits such as parent training.

Parental ADHD Impacts Response to Parental Friendship Coaching Treatment

Parent training, an empirically-supported treatment for child ADHD,³ holds that changes in parenting practices promote improvements in children's adjustment. Although parent training for children with ADHD has historically targeted child symptom reduction, this approach shows promise in ameliorating ADHD-related functional impairments such as social deficits. Among participants in the current study, a parent training intervention aimed at improving the peer relationships of children with ADHD (Parental Friendship Coaching; PFC)⁴ led to increased parental coaching of children's social skills, which mediated improvements in child social functioning.

Given the attentional and behavioral demands of parent training interventions, it is important to determine whether parental ADHD may hamper treatment results for children. Clinical observation suggests that parents with ADHD struggle in parent training,⁵ particularly with modifying parenting practices,⁶ consistently carrying out strategies such as token economies, refraining from impulsively abandoning treatment, being organized and attentive during group sessions, and forming therapeutic alliances.⁵ Empirical investigations have been limited;⁷ however, one study suggested that preschool children failed to experience ADHD symptom improvement following parent training when mothers had high ADHD symptoms.⁸ Maternal inattention also has been associated with mothers' decreased self-reported ability to adapt parenting practices following parent training.⁹ Recent findings indicated that maternal ADHD symptoms were associated with diminished improvements in child ADHD symptoms following parent training, and critically, that mothers' difficulties inhibiting negative parenting mediated the poorer outcomes.¹⁰ However, other studies have not suggested parental ADHD represents a barrier to treatment,¹¹ underscoring the need for further investigation.

Importantly, existing studies lack examination of the parallel trajectory of untreated families. As raised by Chronis-Tuscano and colleagues,¹⁰ existing research suggesting attenuated treatment response associated with maternal ADHD begs the question of whether children in such families are at risk for poor adjustment trajectories owing to mothers' inability to respond to parent training interventions, their inherent difficulties with parenting that exist without treatment, or both. A comparison of the impact of parental ADHD on treated versus untreated families over the same time period could help elucidate the mechanisms through which parental ADHD might influence the functioning of children with ADHD. One possibility is that parental ADHD predicts declines in children's functioning over time naturally, and treatment may mitigate the adverse impact of parental symptoms as parents with ADHD receive guidance toward bringing their child's functioning in line with that of children whose parents do not have ADHD. An alternative possibility is that parental ADHD may again predict declines in untreated children's functioning, but the differences between children of parents with and without ADHD symptoms may be exacerbated in the treatment context because parents without ADHD enact the treatment strategies (and children improve) whereas parents with ADHD struggle to enact the treatment strategies and their children fail to respond. In this second scenario, it is also feasible that parental ADHD could be unrelated to the adjustment of children with ADHD in untreated families as such children may experience declining functioning in the presence of anything short of exemplary,

carefully-structured, “superparenting.”¹² However, treatment may allow parents without ADHD to learn much-needed skills, whereas parents with ADHD may fail to benefit from such instruction. Crucially, all scenarios would be consistent with existing findings in samples without a no-treatment comparison group,^{8–10} suggesting that parental ADHD symptoms predict poorer treatment response.

In this study, we examined the impact of parental ADHD symptoms on treatment response to PFC, which is a parent-training intervention focused on improving children’s peer relationships. It is also important to note that existing research on parent training interventions has largely focused on the impact of parental ADHD on reduction in child ADHD symptoms. However, the functional impairments of children with ADHD, such as social difficulties, constitute frequent treatment referrals and have high public health significance.¹³ Thus, for the clinically-relevant outcome of child social functioning, comparing the trajectories of families receiving PFC relative to families not receiving treatment over the same period is key to uncovering whether parental ADHD places children at increased risk for poor social relationships owing to attenuated treatment response, an absence of effective parental social coaching, or both.

Parental ADHD and Children’s Social Functioning in Untreated Families

Parental ADHD may predict declines in child interpersonal functioning over time in the absence of treatment. Parents contribute to their children’s peer relationships by facilitating and arranging playdates, providing instruction in social skills, and modeling positive interpersonal interactions,¹⁴ with these parental coaching behaviors being particularly relevant to the peer relationships of children with ADHD.¹⁵ Parents’ own ADHD symptoms may disrupt these processes, contributing to poorer social functioning in their children. Adults with ADHD,¹⁶ particularly those with high inattention,¹⁷ are at risk for interpersonal problems, and as parents may have difficulty modeling social skills and networking with other parents to organize playdates for their children. Inattention likely impairs parents’ abilities to consistently monitor their children’s social behaviors whereas impulsivity may interfere with parents’ abilities to provide thoughtful feedback when facilitating children’s peer interactions. Empirically, among a sample that included some of the current study participants, maternal ADHD symptoms were cross-sectionally associated with children’s poor social functioning.¹⁸

Parental ADHD also predicts maladaptive disciplinary practices that could impede children’s peer relationships.¹⁸ Maternal inattention has been linked with inconsistent discipline and decreased involvement¹⁹ as well as more mother-child arguing.⁹ Maternal impulsivity has been associated with decreased positive reinforcement,¹⁹ and when combined with hyperactivity, more over-reactive and lax (inconsistent) parenting.²⁰ Among fathers, inattention and impulsivity have been associated with lax parenting whereas only impulsivity has predicted more arguing with children.⁹ Crucially, warm, involved, yet non-critical parenting is thought to promote children’s peer relationships through providing children with a model of competent interpersonal interaction and enhancing their receptivity to parental social coaching.¹⁴ Associations between authoritative or warm parenting practices and children’s peer acceptance have been found in ADHD samples.^{15, 21}

Study Aims

We investigated whether parental ADHD predicted children’s peer functioning and parent-child relationship outcomes in a sample of families randomly assigned to PFC⁴ (a behavioral parent training treatment to assist children’s social relationships) relative to a no-treatment control group. Among adults, inattention, hyperactivity, and impulsivity are considered independent symptom domains,²² with inattention considered most salient.²³ Inattention and

impulsivity are more often associated with parental behaviors relative to hyperactivity.¹⁹ Thus, inattention and impulsivity should have the greatest potential to impact adults' behaviors and children's outcomes, and we considered the independent predictive value of both domains.

We examined the child peer relationship outcomes and parental coaching behaviors that improved during the original PFC randomized-controlled trial (RCT),¹ excluding those parent-rated given concerns that parental ADHD might bias parents' reports. We explored two possibilities: First, that the negative impact of parental ADHD on child social functioning would be mitigated among treated families relative to control families, or alternatively, that the differences between parents with high versus low ADHD symptoms may be exacerbated in the treatment context. For untreated families, we expected parental ADHD to predict declines in children's social relationships over the study period.

Method

Participants

Participants were 62 children with ADHD (42 boys; ages 6–10), 46 with Combined Type and 16 with Inattentive Type. Approximately 80% of children were white, 10% African American, 2% Asian American, and 8% multiracial. Children participated with a parent considered most involved in their social life (86% mothers), who resided with the child at least half of the time, and who was a legal guardian. Families were recruited from local schools, clinics, and pediatrics offices. Consent was provided by parents and assent by children.

Children's ADHD diagnoses were confirmed by endorsement of clinical levels of symptoms on the Child Symptom Inventory (CSI) ADHD module by both parent and teacher²⁴ and confirmation via clinical interview with the parent using the Kiddie Schedule for Affective Disorders and Schizophrenia (K-SADS).²⁵ Exclusion criteria included presence of a pervasive developmental disorder, Full Scale IQ below 70, or Verbal IQ below 75. Comorbid anxiety, depression, and/or Oppositional Defiant Disorder (ODD) were allowed. The mean IQ for children was 107.07 ($SD=14.49$). Twenty children met criteria for ODD. Children taking psychotropic medication ($n=40$) had been on the regimen for 3 months prior to the study and remained consistently throughout the study period. See the original RCT⁴ for further sample details.

Procedure

Children and their parents attended an intake where both completed questionnaire measures and interviews. Children's teachers (unaware of family treatment status) completed questionnaires by mail. Children attended playgroups consisting of four total children, two with ADHD and two typically-developing children matched for age and sex; the typically-developing children were present to interact with the children with ADHD, but their data were not used in the current report. Parents were present at these playgroups with their children in order for the study team to assess parenting behaviors and parental coaching in friendship skills. The initial 1-hour playgroup consisted of a structured group activity and free play with a private parent-child debriefing at the end. Parents' only instructions were to try to enhance their children's friendship-making. Baseline observations of parent and child behavior were obtained here.

Following the initial playgroup, $n=32$ families were randomly assigned to receive PFC with the remaining $n=30$ families representing a no-treatment control condition. PFC was an 8-week parent training intervention aimed at building parents' skills in coaching their children toward forming friendships; there was no child treatment component nor did children attend

PFC sessions.¹ PFC sessions were manualized and consisted of homework assignment/review, discussions, role plays, and videotape reviews. Content included building positive parent-child relationships, structuring playdates, and providing effective feedback to foster children's peer interactions. Mid-way through PFC treatment, children and parents attended a second playgroup. Post-test questionnaires and observations were taken at a third playgroup held at the end of PFC (approximately 3 months after baseline measures were obtained). Please see the original RCT⁴ for further details.

Measures

Parental ADHD Symptoms—Parents completed the 18-item Current Symptoms Scale (CSS)²⁶ to provide a measure of their own DSM-IV ADHD symptoms at baseline. Items were rated on a 4-point scale (0=never/rarely; 1=sometimes; 2=often; 3=very often), with nine assessing inattention, three assessing impulsivity, and six measuring hyperactivity. Inattention and impulsivity summary scores were used in the current analyses ($\alpha = .92$ and $.82$, respectively in the current sample). The CSS normative sample included $n=720$ adults.²⁶ Self-reports of adults with ADHD using the CSS correlate significantly with reports provided by their romantic partners using the same scale.²⁷

Child Social Functioning—Given concerns that parental ADHD might influence parents' abilities to provide accurate ratings, we examined teacher ratings of children's social functioning using the *Dishion Social Acceptance Scale (DSAS)*.²⁸ This measure showed significant treatment effects for PFC in the original RCT,⁴ and was given at baseline and repeated at post-test. Teachers estimated the proportion of classroom peers that "like and accept" and "dislike and reject" the child according to five increments: "almost none" (less than 25%), "a few" (25–50%), "about half" (50%), "most" (50–75%), to "nearly all" (over 75%). Teacher DSAS ratings have been shown a good proxy for peer sociometrics.²⁸

Parenting Behaviors during Lab-Based Playgroups—We examined the observed parent behaviors that evidenced significant treatment effects for PFC, which included increased parental facilitation and corrective feedback during the free play portion of the playgroup, as well as reduced criticism and increased praise during private parent-child interactions.¹ Playgroups and parent-child interactions were videotaped and coded by trained observers. Twenty-five percent of the tapes were double-coded and intraclass correlations (ICCs) were calculated to estimate inter-rater agreement. Parents' behaviors were coded on a scale from 0 (*no evidence of the behavior*) to 3 (*more than one major incident or only one major incident with at least one minor incident*). (a) *Facilitation (Playgroup)*. The parent promotes positive engagement in play activities with peers by providing support and assistance to their child. Example: (parent to child) "Maybe you could ask her if she will help with the puzzle". ICC=.83. (b) *Corrective Feedback (Playgroup)*. The parent suggests behavioral changes to their child in a non-critical way. Example: (parent to child) "It might be nice to ask before taking the toy from him." ICC=.74. (c) *Criticism (Parent-child Interaction)*. The parent provides feedback characterized by irritation, hostility, and/or frustration that reflects negatively on their child's behavior and/or character. Example: (parent to child in a harsh tone) "Why is it impossible for you to play nice?" ICC=.83. (d) *Praise (Parent-child Interaction)*. The parent delivers positive feedback on their child's behavior and/or or character that is free of negative tone and genuine. Example: (parent to child) "That was nice of you to share your toy." ICC=.79.

Covariates

Child medication status and parent education level—These were reported by parents at intake.

ODD—Comorbid ODD was established if parents endorsed clinical levels of symptoms on the K-SADS²⁵ and if teachers' report on the Oppositional Behavior scale of the Conners' Ratings Scales²⁹ resulted in *T*-scores > 60.

Full Scale IQ—This was estimated using six subtests of the Wechsler Intelligence Scale for Children (WISC-IV)³⁰, a well-validated measure of cognitive ability.

Observed child aggression—The frequency of children's physical, verbal, and nonverbal aggression toward parents and peers during the playgroup was coded using the same 0–3 metric as parental playgroup behavior as described above. ICC=.66.

Results

Descriptive Statistics

Data ranged from complete to missing for $n=8$ participants across study variables. Missing data were handled using listwise deletion. Parents' inattentive and impulsive symptom scores evidenced positive skew. Teacher reports of peer rejection using the DSAS, parents' observed facilitation and criticism, and children's observed aggression also were moderately right-skewed. However, variables were not transformed in order to capture meaningful variability.

Treatment and control families did not differ in terms of baseline functioning¹ or parental inattention or impulsivity, $t(56)=-.55$; $p=.59$ and $t(56)=.02$; $p=.98$, respectively. Treatment parents attended an average of 87% of PFC sessions (including regularly-scheduled and make-up sessions). Attendance was not correlated with either parental inattention ($r=-.26$, $p=.16$) or impulsivity ($r=-.12$, $p=.54$). See Table 1 for additional descriptive information.

Parental ADHD Symptoms

Parents' inattentive and impulsive symptoms were correlated, $r=.59$; $p<.001$. Out of the $n=62$ parents, $n=9$ surpassed clinical cut-offs for inattention for their respective age group ($n=4$ in PFC; $n=5$ in control group). Parents reported symptomatology ranging from zero to the maximum for each domain (inattention max = 27, impulsivity max = 9).

Parental ADHD Symptoms and Child Social Functioning

We first investigated whether parental ADHD symptoms predicted declines in child social functioning (increased peer rejection and decreased acceptance) among control families, and then whether parental ADHD either mitigated or exacerbated these adjustment trajectories among treated families. A series of hierarchical multiple regression analyses were conducted where children's post-test social functioning served as the dependent variable. We first controlled for baseline functioning, treatment status (PFC versus control group, dummy-coded), and demographic covariates (child ODD, medication status, FSIQ, and parental education). Demographic covariates were selected given their potential to influence parent-assisted treatment for child ADHD.^{31, 32} Next, we entered either parent inattentive or impulsive ADHD symptoms to separately assess their contributions to child social functioning beyond the influence of children's baseline scores and covariates. Given the strong correlation between the two symptom domains, we examined them independently given concerns about multicollinearity and statistical overcontrol. Lastly, we added an interaction term between treatment status and either parent inattentive or impulsive symptoms to assess the predictive relationship between parent symptoms and treatment outcomes among treated relative to control families.

Table 2 shows that parental inattentive, but not impulsive, symptoms predicted decreases in children's teacher-rated peer acceptance as a main effect. There were no interaction effects between parental ADHD and treatment status in predicting peer acceptance. Neither parental inattention nor impulsivity predicted teacher-rated peer rejection as a main effect, but an interaction between inattention and treatment status emerged in predicting teacher-rated peer rejection (Table 2). Probing suggested that parental inattention was associated with increased rejection for those who experienced PFC, $\beta=.54$; $p=.01$, but did not influence the rejection of children in control families, $\beta=.03$; $p=.83$.

Given the negative association between parental inattention and rejection among treated relative to control families, we plotted the predicted trajectories of treatment and control participants at low and high levels (one SD below or above the sample mean, respectively) of parental inattention to better understand this result (Figure 1). Graphs suggested that children in the control group increased in peer rejection over the study period regardless of parental inattention levels, consistent with our empirical results suggesting no impact of parental inattention in this group. However, as observed in the original RCT,¹ there were predicted decreases in peer rejection at post-test for children of treatment group families, crucially, *if their parents had low levels of inattention*. Children of parents with high inattention in the treatment likely experienced increased post-test rejection, similar to the pattern experienced by control families regardless of parental symptomatology.

We note that the predicted trajectory for children of parents with high inattention in the current sample (as defined by 1 SD above the sample mean) corresponds to a CSS inattention score of 12.72. This value exceeds 12.1, the cut-off for clinical inattention reported by CSS authors for adults ages 30–49, of which 85% of the current sample is comprised. Therefore, the graph lines depicting the estimated trajectories for parents considered to have high inattention in the current sample likely represent those with clinical levels of inattentive symptoms. Although the graphs are projected (and not actual) outcomes when parents demonstrate high inattention, the families experiencing clinically significant parental inattention and subsequent attenuated treatment response are likely few in number given that only 4 of 32 treated parents surpassed CSS inattention cut-offs.

Parental ADHD Symptoms and Parenting Behaviors

We next investigated whether parental ADHD symptoms predicted increased parenting difficulties (i.e. increased criticism; decreased corrective feedback, facilitation, and praise) among untreated families, and either mitigated or exacerbated these trajectories for treated families. Hierarchical Linear Modeling (HLM) was used to test these hypotheses. HLM is a statistical procedure that helps account for any influences in parenting behaviors attributable to parents being around other parents and children in their particular playgroup. Models assessing the relationship between parental ADHD symptoms and observed parenting behaviors parallel those involving child social outcomes, except observed child aggression in the playgroup also was covaried given its influence on parents' behaviors.³³ Predictors (all grand mean centered) and covariates were entered sequentially at Level 1 in a manner similar to the hierarchical multiple regressions described above. No predictors were entered at Level 2 as this was only used as a statistical control for differences in outcomes that could be attributed to the influence of the other families in the playgroup.

Table 2 shows that parental inattention and impulsivity each predicted decreased facilitation as a main effect, and parental impulsivity was associated with increased criticism as a main effect. However, given the presence of interactions (described below) between treatment and parental ADHD symptoms for each of these outcomes, these main effects were not interpreted. Neither parental inattention nor impulsivity predicted parents' use of corrective

feedback or parental praise; similarly, no relationship existed between parental inattention and criticism.

Parental inattentive and impulsive symptoms each interacted with treatment status (PFC versus control group) in predicting parents' observed facilitation of their children's peer interactions. Parental inattention appeared associated with decreasing parental facilitation for treated families, $\beta = -.44$; $p = .06$, but not for control families, $\beta = .02$; $p = .92$. Similarly, parental impulsivity was negatively associated with facilitation for treated families, $\beta = -.55$; $p = .01$, but not for control families $\beta = -.01$; $p = .94$. An interaction also existed between parental impulsivity and treatment status in predicting parents' observed criticism during parent-child interactions. In this case, however, parental impulsivity was associated with increasing criticism among control families, $\beta = .48$; $p < .01$, but not for treated families, $\beta = -.05$; $p = .82$.

We again plotted the trajectories of treatment and control participants for the outcomes of parental facilitation (Figure 2) and criticism (Figure 3). Figure 2 similarly suggests that control group parents reduced their facilitation of their child's peer relationships over the study period regardless of parental inattention or impulsivity. However, parents in PFC increased their facilitation if they had low levels of either inattention or impulsivity (similar to results from the RCT of PFC), but parents with high levels of either symptom domain decreased in facilitation over time similar to control participants. Figure 3 suggests that control group parents with high impulsivity became increasingly critical over time whereas parents with low impulsivity remained relatively stable. However, parents in PFC, regardless of their level of impulsivity, decreased their criticism over time as found in the original RCT.⁴

Discussion

This study found that parental inattention was associated with declining peer acceptance among children from both treated and untreated families. However, the prospective relationship between parent ADHD symptoms and children's peer rejection, parents' facilitation, and parents' criticism differed depending on whether families received PFC treatment or were in the control group. For some outcomes, treatment exacerbated differences between parents with high versus low ADHD symptoms. Parental ADHD symptoms were not associated with peer rejection and parent facilitation outcomes among untreated families as children experienced increasing rejection by classroom peers and decreasing facilitation by their parents over time regardless of parents' symptom levels. However, high parental inattention predicted increased child peer rejection and high parental inattention and impulsivity predicted decreased parental facilitation (indicating reduced treatment response) among treated families. Low parental symptoms among treated families were associated with improved functioning in these areas. For other outcomes, treatment mitigated differences between parents with varying ADHD symptom levels. Parental impulsivity was associated with increased criticism among untreated families; however, among treated families, all parents demonstrated decreasing criticism, and parental impulsivity did not influence this trajectory.

We had aimed to uncover whether declines in child functioning and parenting practices might occur naturally as a result of parental ADHD or because of poor treatment response following PFC. Overall, findings support both possibilities. Parental inattention appeared to place children with ADHD at inherent risk for decreasing peer acceptance over time, regardless of treatment status. Parents with high inattention likely struggle naturally to socially coach their children, which puts their children at greater risk for declining social success, and treatment did not affect this natural trajectory. However, for other outcome

measures, parental ADHD appeared associated with reduced treatment response. Families experienced poor trajectories regardless of parents' ADHD symptom levels in the absence of treatment. However, families participating in PFC achieved treatment gains including decreased child peer rejection when parents were low in inattention and increased parent facilitation when parents were low in inattention and impulsivity. Families where parents had high symptomatology did not achieve equivalent benefit from treatment and evidenced comparable trajectories to untreated families. Finally, for still other outcomes, treatment seemed to mitigate the natural negative effect of parental ADHD on functioning. Control parents with high impulsivity appeared to become increasingly critical relative to parents with low impulsivity, but treatment eliminated these differences, such that treated parents showed reductions in criticism regardless of symptomatology levels. Although we cannot conclude that these processes are specific to children with ADHD, we note that children without ADHD in the original PFC sample⁴ (none of whom received treatment or were included in current analyses) did not experience changes in these outcome variables across the study period. We also note that parents with clinical levels of ADHD inattention in the current study were few in number ($n=9$ out of $n=62$ total parents), and thus parents with clinically-significant ADHD symptoms likely represent a small, but important subgroup that may not benefit from treatment for some outcomes. Lastly, although it appears that elevated parental ADHD predict a lack of treatment response, it remains possible that parental symptoms are associated with iatrogenic effects.^{34, 35}

Several explanations exist for the poorer treatment response in some outcomes observed among parents with high ADHD symptoms. Given established relationships between parental inattention and inconsistent/lax parenting⁹ and clinical observation that parents with ADHD struggle to sustain attention during parent training,⁵ inattentive parents may struggle within session to attend to treatment providers and learn new skills, as well as outside session to consistently attend to children's needs and implement treatment strategies. It also has been suggested that parents with ADHD may impulsively discontinue treatment.⁵ Here, parents with greater ADHD symptoms could observe fellow group members "getting better", and the resulting frustration leads to decreased treatment adherence. However, the mitigating effect of treatment on the association between parental impulsivity and increasing parental criticism could suggest that parents with ADHD can modify negative parenting practices in the context of a parent training intervention, a result in contrast to recent findings.¹⁰ Nonetheless, findings are consistent with previous suggestions that mothers with the highest ADHD symptoms reap less benefit from parent training interventions, and expand results to clinically-relevant outcomes beyond general parenting improvement and child symptom reduction.^{8, 9}

Limitations include the fact that, in playgroups, children were exposed to feedback from other parents with likely varying levels of parental ADHD symptoms. The current study also lacked measures of parental depression (common among mothers of children with ADHD)³⁶ and self-efficacy, factors that may impact treatment response.^{11, 32} Future studies also would benefit from considering clinically-diagnosed ADHD in both participating and nonparticipating parents (including information regarding their childhood symptoms and functional impairment), as well as among fathers who are typically underrepresented. Future work also should consider whether parent symptoms influence other treatment modalities such as stimulant medication adherence.⁸ Lastly, the small number of children with ADHD-I in our sample precluded examination of whether parental ADHD influenced treatment outcomes differently based on children's ADHD subtype, but this is an important direction for future research given the distinct social impairments associated with combined and inattentive subtypes.³⁷

Results imply that clinicians might screen for parental psychopathology before conducting parent training interventions. For parents with high ADHD symptoms, sessions might be shortened, restructured, or held separately from those with parents without ADHD symptoms. Psychoeducation also may be helpful to parents in understanding their own limitations in implementing treatment strategies. Just as management of parental anxiety has been shown beneficial to the treatment of child anxiety,³⁸ it may be necessary to include an adjunctive intervention component targeting parental ADHD,⁷ or recommend that parents receive pharmacological or psychological treatment themselves before initiating parent training.

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Figure 1. Peer rejection trajectories at either low or high levels of parental Current Symptom Scale - inattention (CSS-Inatt) among the control and treatment samples. *DSAS* = Dishion Social Acceptance Scale;

Figure 2.
Parent facilitation trajectories at either low or high levels of parental Current Symptom Scale - inattention (CSS-Inatt) and -impulsivity (CSS-Imp) among the control and treatment samples.

Figure 3. Parent criticism trajectories at either low or high levels of parental Current Symptom Scale - impulsivity (CSS-Imp) among the control and treatment samples.

Table 1

Descriptive Statistics and Correlation Matrix for Study Variables

Variable	Baseline Mean (SD)		Post-test Mean (SD)		1	2	3	4	5	6	7	8
	Control	PFC	Control	PFC								
1. CSS Inattention	7.33 (6.85)	6.48 (4.88)	--	--	--	--	-.27*	-.14	-.25	-.15	.11	.00
2. CSS Impulsivity	1.33 (2.09)	1.32 (1.47)	--	--	.59**	--	-.03	.14	-.33*	-.01	.21	-.22
3. DSAS L/A	2.93 (1.34)	3.22 (1.36)	2.62 (1.15)	3.45 (1.35)	.15	.01	--	-.56**	.04	-.27§	-.19	-.29*
4. DSAS D/R	2.03 (1.10)	1.72 (1.11)	2.21 (1.11)	1.66 (.81)	-.18	-.18	-.66**	--	-.11	.26	.01	.11
5. Facilitation	1.53 (.90)	1.37 (1.07)	1.04 ^a (1.24)	1.35 (1.14)	-.21	-.33*	-.09	.03	--	.36**	.02	.22
6. Corrective Feed.	.67 (.92)	.50 (.94)	.32 (.56)	.66 (.77)	-.14	-.11	-.35**	.20	.34**	--	.21	.05
7. Criticism	.90 (.98)	.75 (.97)	1.08 (1.12)	.38 (.82)	-.23	-.01	-.26*	.15	-.20	.12	--	-.32*
8. Praise	1.00 (1.00)	.82 (.95)	1.24 (1.20)	1.62 ^a (.98)	.07	-.06	-.30*	.30*	.23	.15	-.15	--

Note: Baseline correlations below diagonal; post-test correlations above diagonal. *Corrective Feed* = observed Corrective Feedback; *CSS* = Current Symptoms Scale; *DSAS D/R* = Dishion Social Acceptance Scale Dislike/Reject; *DSAS L/A* = Dishion Social Acceptance Scale Like/Accept; *PFC* = Parental Friendship Coaching.

^a denotes a significant difference (at $p < .05$) from baseline using a paired samples t -test.

§ $p = .05$;

* $p < .05$;

** $p < .01$.

Table 2

Parent Symptoms Predict Children's Relationship Outcomes

Post-test: Predictors:	Hierarchical Multiple Regression				Hierarchical Linear Modeling			
	DSAS Like/Accept		DSAS Dislike/Reject		PG Facilitation		PCI Criticism	
	β	(SE)	$R^2\Delta$	R^2Tot	β	(SE)	T-ratio	T-ratio
Step 1: Baseline functioning	.63**	(.10)	.39**	.39	.40**	(.12)	.16**	.16
Step 2: Treatment Status	.25*	(.27)	.06*	.45	-.25*	(.24)	.06*	.22
Step 3: Child Medication Status	.02	(.30)			-.02	(.26)		
Comorbid ODD	-.13	(.32)			-.16	(.35)		
Full Scale IQ	-.05	(.01)			-.33**	(.01)		
Parental Education	.05	(.14)	.02	.47	.01	(.01)	.13	.35
Child Aggression ^c								
Step 4: Parent CSS-Inattention	-.36**	(.02)	.11*	.59	.20	(.02)	.03	.39
Parent CSS-Impulsivity	-.04	(.08)	.00	.47	.04	(.07)	.00	.35
Step 5: CSS-Inat $\times$ Treatment	-.14	(.05)	.01	.60	.29*	(.04)	.05*	.44
CSS-Imp X Treatment	-.07	(.19)	.00	.47	-.01	(.16)	.00	.35
Random Effects:								
	σ^2	τ	χ^2	σ^2	τ	χ^2	σ^2	τ
Conditional Model ^a	.753	.309	40.26	.815	.001	18.08		
Conditional Model ^b	.918	.086	25.24	.736	.001	18.42		
Unconditional Model	.780	.588	70.84	1.023	.001	20.78		

Note: $R^2\Delta$ and $Total R^2$ = estimates for the entire step. Level 2 was included to account for families' nesting into playgroups, but no predictors were tested. Results in table are from analyses when Current Symptom Scale (CSS)-Inattention and CSS-Impulsivity were entered in separate models.

^c child aggression only entered as a covariate in hierarchical linear modeling analyses. DSAS = Dishion Social Acceptance Scale; ODD = Oppositional defiant disorder; PCI = Parent-child interaction; PG = Playgroup.

^{a,b} estimates for models involving CSS-Inattention and CSS-Impulsivity, respectively.

^s $p < .06$;

* $p < .05$;

$p < .10$
**

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